

REMARKS

This Amendment is fully responsive to the final Office Action dated December 9, 2009, issued in connection with the above-identified application. The Applicants have included a fee for a two-month extension of time and a request for continued examination (RCE). Claims 29, 30 and 32-56 are pending in the present application. With this Amendment, claims 29, 50, 51, 54 and 55 have been amended. No new matter has been introduced by the amendments made to the claims. Favorable reconsideration is respectfully requested.

In the Office Action, claims 29, 30, 32-37, 39-41 and 43-55 have been rejected under 35 U.S.C 103(a) as being unpatentable over Guenebaud (U.S. Pub. No. 2003/0012377, hereafter “Guenebaud”) in view of Colman (U.S. Pub. No. 2002/012419, hereafter “Colman”), and further in view of Borseth (U.S. Pat. No. 6,340,997, hereafter “Borseth”) and Hurst (U.S. Pat. No. 6,985,188, hereafter “Hurst”).

The Applicants have amended independent claims 29, 50, 51, 54 and 55 to more clearly distinguish the present invention from the cited prior art. For example, independent claim 29 (as amended) recites the following features:

“[a] digital television receiver module for use in a digital television receiver, wherein the digital television receiver module can connect decoders of devices with front-end circuits and CA modules made differently for respective broadcast specifications, the digital television receiver module comprising:

a first connecting device having a common terminal for electrically connecting to one external substrate among external substrates which can receive digital television signals of broadcasting systems different from each other;

a decoding device for executing a decoding processing on a digital television signal inputted from a demodulator provided on said external substrate via said first connecting device, so as to convert the digital television signal into a video signal and an audio signal, and for outputting the video signal and audio signal via said first connecting device;

a control device for controlling an operation of said digital television receiver module;
and

an interface device which is connected to one conditional access module among a plurality of types of conditional access modules having electrical specifications different from each other via said first connecting device, and which is connected to said demodulator, said

decoding device, and said control device, said interface device executing input and output processings on a plurality of signals communicated among said demodulator, said conditional access module, said decoding device, and said control device,

wherein said control device controls said interface device by changing types and electrical specifications of at least one signal of a plurality of signals communicated via said first connecting device, so as to conform to electrical specifications of a connected conditional access module, in response to at least one of a broadcasting system of an inputted digital television signal and a type of said connected conditional access module; and said interface device comprises a plurality of buffers, and said control device controls on-off states of respective buffers in said interface device so as to control the input and output processings.” (Emphasis added).

The features emphasized above in independent claim 29 are similarly recited in independent claims 50, 51, 54 and 55 (as amended). Additionally, the features emphasized above in independent claim 29 (as similarly recited in independent claims 50, 51, 54 and 55) are fully supported by the Applicants’ disclosure.

The present invention (as recited in independent claims 29, 50, 51, 54 and 55) is clearly distinguishable from the cited prior art in that a digital television broadcasting receiver module for use in a digital broadcasting receiver can commonly support broadcasting standards different from each other in respective countries.

A demodulator and a CA module (Conditional Access module) required for a digital broadcasting receiver are different depending on the broadcasting standards, the type of signals, the electrical specifications, and the direction of the input and output of signals in the terminals, which are inputted to and outputted from the same demodulator and the same CA module.

According to the digital television broadcasting receiver module of the present invention (as recited in independent claims 29, 50, 51, 54 and 55), interface specifications are defined that can connect the same module through a common terminal thereby increasing the number of types of the connectable demodulators and the number of types of the connectable CA modules without increasing the number of terminals. As a result, the present invention (as recited in independent claims 29, 50, 51, 54 and 55) can have the advantageous effect of providing a small-sized and low-cost common digital broadcasting receiver module which can support different broadcasting standards.

Additionally, the features of interface means of the present invention (as recited in independent claims 29, 50, 51, 54 and 55) for defining the interface specifications that can connect the same module through a common terminal are as follows.

(A) Input buffers and output buffers (which are connected with a common terminal) are provided, and turning on and off of the input buffers and turning on and off of the output buffers can be switched over depending on the demodulator and the CA module which are connected. Additionally, switching between the input signal and the output signal can be performed. As a result, the module can be connected with not only a smart card (IC card) but also with a CI as used in European countries (i.e., where the electrical specifications of the input and output signals, the type of signals and the directions of the input and output signals are different from each other), and a cable card as used in north America, without increasing the number of terminals.

(B) When receiving a data signal indicating a type of an external substrate from the external substrate which is connected with the digital broadcasting receiver module, turning on and off of the input buffers and turning on and off of the output buffers are switched over in response to the type of the external substrate. Additionally, the types of demodulators and the CA modules which are implemented on the external substrate are included in the type-indicated data signal. In this case, turning on and off of the input buffers and the output buffers can be done in response to the type of demodulators and CA modules.

As a result, the manufacturer of the digital broadcasting receiver can easily manufacture a digital broadcasting receiver which can support different broadcasting standards by combining the digital broadcasting receiver module of the present invention (as recited in independent claims 29, 50, 51, 54 and 55) and an external substrate implementing the demodulator and the CA module. Thus, it is not necessary for users to select the types of the demodulators and CA modules.

In the Office Action, the Examiner relies on a combination of Guenebaud, Colman, Borseth and Hurst for disclosing or suggesting all the features recited in independent claims 29, 50, 51, 54 and 55. However, the Examiner relies primarily on Guenebaud for disclosing or suggesting all the features of the “a first connecting device” of the present invention (as recited in independent claims 29, 50, 51, 54 and 55). However, the Applicants assert that Guenebaud

fails to disclose or suggest all the features of the first connecting device now recited in independent claims 29, 50, 51, 54 and 55, as amended.

In the present invention (as recited in independent claims 29, 50, 51, 54 and 55), a first connecting device has a common terminal for electrically connecting to one external substrate among external substrates which can receive digital television signals of broadcasting systems different from each other.

Conversely, Gueneboud discloses an interface module that can be integrated into a digital television signal decoder, wherein the interface module has a plurality of different slots for receiving different types of smart cards (see e.g., Fig. 1).

As noted above, nothing in Gueneboud discloses or suggests the use of a common terminal for electrically connecting to one external substrate among external substrates which can receive digital television signals of broadcasting systems different from each other, as in the present invention (as recited in independent claims 29, 50, 51, 54 and 55). Additionally, none of the remaining cited prior art is relied on by the Examiner for disclosing or suggesting the above features (i.e., the first connecting device) of the present invention (as recited in independent claims 29, 50, 51, 54 and 55).

In summary, the cited prior art is silent with regard to a configuration of turning on and off of input buffers and turning on and off of output buffers that are connected to a signal common terminal, which are switched over in response to the type-indicated data signal indicating the type of the external substrate implemented in the demodulator and the CA module.

In addition, there is no mention in the cited prior art that the number of types of the demodulators and the CA modules can be increased without increasing the number of terminals. Thus, the cited prior art fails to disclose or suggest the advantageous effect of the small-sized and low cost common digital broadcasting receiver module of the present invention (as recited in independent claims 29, 50, 51, 54 and 55).

Based on the above discussion, even if one of ordinary skill in the art were to combine the teachings of Gueneboud, Colman, Borseth and Hurst, the combination still would not disclose or suggest all the features recited in at least independent claims 29, 50, 51, 54 and 55 (as amended).

Accordingly, no combination of Gueneboud, Colman, Borseth and Hurst would result in, or otherwise render obvious, independent claims 29, 50, 51, 54 and 55. Likewise, no

combination of Guenebaud, Colman, Borseth and Hurst would result in, or otherwise render obvious, claims 30, 32-37, 39-41, 43-49 and 52 and 53 at least by virtue of their respective dependencies from independent claims 29 and 50.

In the Office Action, claim 38 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Guenebaud in view of Colman, and further in view of Borseth, Hurst and Candelore (U.S. Pub. No. 2004/0228175, hereafter “Candelore”); claim 42 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Guenebaud in view of Colman, and further in view of Borseth, Hurst, and Jensen et al. (U.S. Pat. No. 6,603,080, hereafter “Jensen”); and claim 56 has been rejected under 35 U.S.C 103(a) as being unpatentable over Guenebaud in view of Colman, and further in view of Borseth, Hurst and Sengupta et al. (U.S. Pub. No. 2005/0088255, hereafter “Sengupta”).

Claims 38 and 42 depend from independent claim 29; and claim 56 depends from independent claim 50. As noted above, Guenebaud in view of Colman, and further in view of Borseth and Hurst fails to disclose or suggest all the features of independent claims 29 and 50 (as amended). Moreover, Candelore, Jensen and Sengupta fail to overcome the deficiencies noted above in Guenebaud, Colman, Borseth and Hurst. Accordingly, no combination of Guenebaud, Colman, Borseth and Hurst with Candelore, Jensen or Sengupta would result in, or otherwise render obvious, claims 38, 42 and 56 at least by virtue of their respective dependencies from independent claims 29 and 50.

In light of the above, the Applicants submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner withdraw the rejections presented in the outstanding Office Action, and pass the present application to issue.

Additionally, the Examiner is invited to contact the undersigned attorney by telephone to resolve any remaining issues in the present application.

Respectfully submitted,

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